

REMARKS

Claims 1 and 4-7 have been examined pursuant to a previous restriction requirement. Claims 2 and 19 were previously cancelled, and claims 3, 8-18, and 20-29 have been withdrawn. Favorable reconsideration of the application is respectfully requested.

Objections to the Drawings

The Examiner objects to Figs. 35-36 in that the figures should be labeled "Prior Art" or comparable. Pursuant to the Examiner's comments, a replacement drawing sheet for Figs. 35 and 36 are provided, wherein the figures are labeled "Conventional Art". Accordingly, Applicants respectfully request that the objections be withdrawn.

Objections to the Oath/Declaration

A declaration referring generally to 37 CFR § 1.56 is submitted herewith.

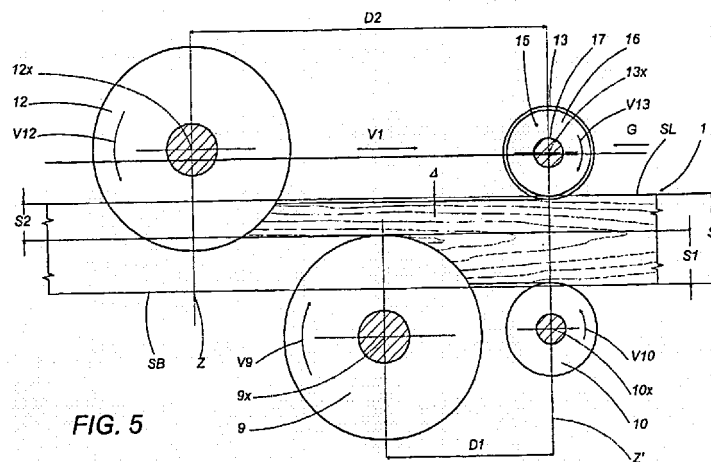
Claim Rejections -- 35 U.S.C. § 102(b)

Aspects of the invention include a substrate cutting system for cutting a bonded substrate composite having a first substrate and a second substrate. A cutting apparatus includes a first cutting device located on the first substrate and a second cutting device located on the second substrate. Each cutting device includes a scribing portion for forming a scribing line on each respective substrate, a breaking portion for breaking each respective substrate along the scribing line, and a backup portion for applying pressure to the substrate opposite a respective breaking portion.

The apparatus of the present invention may simultaneously cut two brittle material substrates making up a bonded substrate. A scribing mechanism and backup mechanism are provided so as to be movable closer to/away from the

substrate, and they are provided so as to apply a predetermined force on the substrate. With such a structure, when both sides of the bonded brittle material substrate are simultaneously processed, the scribing mechanism and the backup mechanism move along the surface of the substrate, which results in an advantage of not applying unnecessary force on the substrate.

The Examiner rejects claims 1 and 4-5 as being anticipated by Benuzzi, U.S. Patent No. 6,178,864. Benuzzi discloses a device for sawing stacked wood panels. On one side of the stack, a cutting means includes a scoring saw 10 and a circular saw blade 9. A second scoring saw 13 and circular saw blade 12 are on the opposite side of the stack. The diameters of the saws overlap such that a cut is made whereby one saw cuts slightly more than halfway through the stack from one side, and the other saw cuts through the remainder of the stack from the other side. The stack is supported on one side by the hold-downs 5 and 5', and on the other side by a table 3. (See, e.g., Figs. 2, 3, 4, and 5.) Fig. 5 is reproduced below as representative.



Regarding claim 1, the Examiner equates the scoring saws 10, 13 of Benuzzi with the claimed scribing portions, and the circular saw blades 9, 12 with

the claimed breaking portions. The Examiner also equates the hold-downs 5, 5' and the table 3 with the claimed back-up portions.

Benuzzi operates differently from the invention. First, the backup portion of the present invention differs from the support structures (hold-downs and table) described in Benuzzi. The Application states that each backup portion is a backup roller which ascends/descends "and presses the surface of the mother bonded substrate 200 with an appropriate pressure." (See Application at page 22, line 31 to page 23, line 33.) The first backup roller of the first cutting device opposes the second breaking roller on the second cutting device, and vice versa. Thus, the backup rollers press against the substrate to apply backup pressure against the substrate opposing the opposite breaking roller. The device of Benuzzi does not operate in this manner, in which the wood is guided by fixed structures. Accordingly, to clarify these distinctions of the backup roller, claim 1 has been amended to recite that the backup portions "move to apply pressure against" the respective surfaces of the substrate, rather than merely supporting the substrate.

In addition, the wood is sawed or cut by the device of Benuzzi, and is not broken along a scribing line as in the invention. The Application describes the breaking portion as a "breaking roller" that presses and rolls against the substrate along the scribing line. The breaking roller further may be formed of an elastic body which, when deformed, applies forces to push out the substrates to break them along the scribing line. (See Application at page 21, line 23 to page 22, line 29.) In contrast, the apparatus of Benuzzi saws or cuts through the substrate, but does not break the substrate as in the invention. The distinction is present because the wood saws of Benuzzi are not amenable to cutting brittle substrates, such as glass.

Claim 1 has been amended to clarify this distinction by reciting a "breaking portion for ~~cutting~~ breaking the [first/second] substrate by applying pressure

against the [first/second] substrate along the scribing line." The apparatus of Benuzzi does not operate in this matter.

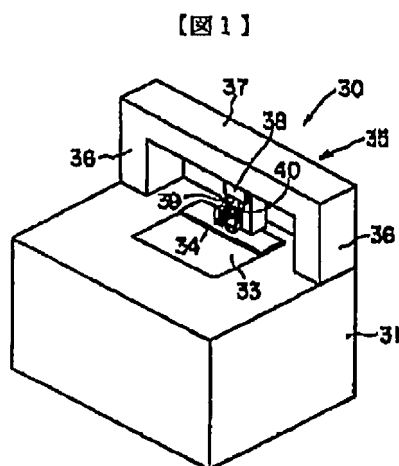
For at least these reasons, claims 1 and 4-5 are not anticipated by Benuzzi, and the rejection of claims 1 and 4-5 should be withdrawn.

Claim Rejections – 35 U.S.C. § 103(a)

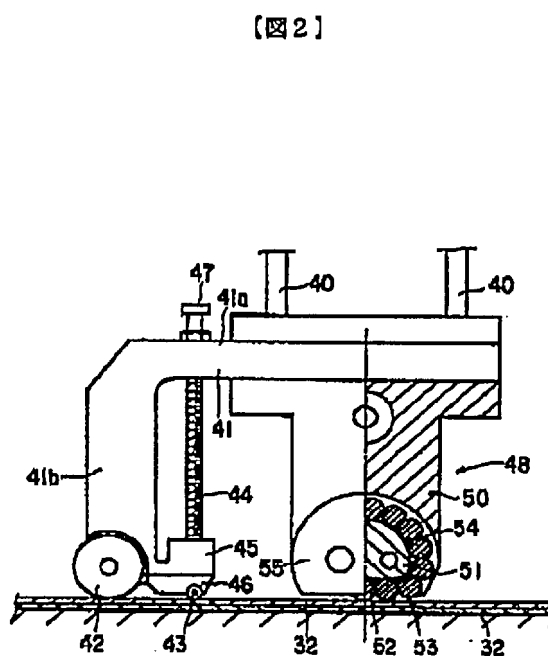
Claim 1 also stands rejected pursuant to 35 U.S.C. § 103(a) as being obvious over Masakazu, Japanese Patent Publication No. 10-338534 in view of Masayuki, Japanese Patent Publication No. 10-209086. Claims 4-7 stand rejected as obvious over Masakazu and Masayuki, further in view Shigeyuki, Japanese Patent Publication No. 2001-261357.

The Examiner states that Masakazu discloses a cutting system having one scribing portion, one breaking portion, and one backup portion on one side of the substrate. Masayuki discloses providing a scribing line on both sides of a substrate to be broken. The Examiner states that it would have been obvious to provide the system of Masakazu on both sides of the substrate, as allegedly suggested by Masayuki, to arrive at the claimed invention. For reference, Figs. 1 and 2 of Masakazu are reproduced below as representative.

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【図 3】



Applicants respectfully disagree with the Examiner's statement that the invention would result by merely providing the system of Masakazu on both sides of the substrate. If one did so, the breaking and backup portions would not be oppositely aligned as in the invention, but rather the alleged backup portions would oppose each other, and the alleged breaking portions would oppose each other. The advantages of the invention, therefore, would not be achieved.

In this vein, the Examiner also states that the claimed breaking portion is comparable to element 48 of Masakazu. It is unclear precisely how the breaking portion operates in Masakazu. Applicant notes that in the figures, the substrate is shown as moving along a flat table surface accessible only from the top. (See Fig. 1 above.) Given the depiction of the substrate being moved on a flat table surface, it is unlikely that one skilled in the art would be motivated to modify the device of Masakazu to provide cutting, breaking, and backup portions on both sides of the substrate, even considering Masayuki.

In addition, as with Benuzzi, the alleged backup portion of Masakazu differs from that of the invention. The alleged backup portion of Masakazu is described as guiding mechanism 42. It does not move to apply pressure against

the substrate. Furthermore, the backup rollers of the invention are on the opposite side of the substrate from the opposed breaking roller. In Masakazu, the alleged breaking portion 48 and the guiding mechanism 42 are on the same side of the substrate. The guiding mechanism 42 of Masakazu, therefore, does not truly "back up" the purported breaking portion in the manner as claimed. For at least these reasons, the clarifying amendments to claim 1, regarding the back-up portion, also distinguish over Masakazu.

For at least these reasons, claim 1 is not obvious over Masakazu in view of Masayuki. For the same reasons, claims 4-7 are not obvious over Masakazu and Masayuki, further in view Shigeyuki. Accordingly, the rejection of claims 1 and 4-7 should be withdrawn.

Conclusion

Claims 1 and 4-7 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Respectfully submitted,

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